

CLAIMS

SUB A<sub>1</sub> > 1. Fuel composition which combusts instantaneously, comprising from 40 to 95% by weight of an instantaneously combusting fossil fuel and from 60 to 5% by weight of a non-fossil solid fuel chosen from the group comprising urban solid waste, elastomeric and non-elastomeric polymer materials and mixtures thereof, this fuel being suitably treated so as to be instantaneously combustible.

2. Composition according to Claim 1, in which the amount of the said instantaneously combusting fossil fuel is between 50 and 90% by weight.

Sub C<sub>2</sub> > 3. Composition according to Claim 1, in which the amount of the said non-fossil solid fuel is between 50 and 10% by weight.

SUB A<sub>2</sub> > 4. Composition according to Claim 1, in which the amount of the said instantaneously combusting fossil fuel is between 60 and 80% by weight.

Sub C<sub>4</sub> > 5. Composition according to Claim 1, in which the amount of the said non-fossil solid fuel is between 40 and 20% by weight.

SUB A<sub>3</sub> > 6. Composition according to any one of the preceding Claims 1 to 5, in which the instantaneously combusting fossil fuel is chosen from the group comprising methane, fuel oil, which may be in emulsion form, and fossil coal dust, which may be in suspension form.

7. Composition according to any one of the preceding Claims 1 to 6, in which the said non-fossil solid fuel comprises a first fraction consisting of urban solid waste, a second fraction consisting of elastomeric material and a third fraction consisting of non-elastomeric polymer material.

8. Composition according to Claim 7, in which the amount of each of the three fractions is preselected as a function of the desired calorific power.

SUB A<sub>4</sub> > 9. Composition according to any one of the preceding Claims 1 to 8, in which the non-fossil solid

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fuel has an apparent density is equal to or less than 0.6 g/cm<sup>3</sup>.

10. Fuel composition which combusts instantaneously, comprising from 40 to 95% by weight of an instantaneously combusting fossil fuel and from 60 to 5% by weight of particles less than 1 mesh in size of a non-fossil solid fuel chosen from the group comprising urban solid waste, elastomeric and non-elastomeric polymer materials, and mixtures thereof.

11. Composition according to Claim 10, in which at least 90% by weight of the abovementioned particles are smaller than 2 mesh in size.

12. Composition according to Claim 10, in which at least 50% by weight of the abovementioned particles are smaller than 4 mesh in size.

13. Composition according to any one of the preceding Claims 10 to 12, in which the particles of non-elastomeric polymer material are less than 5 mm in size.

14. Composition according to any one of the preceding Claims 10 to 13, in which the amount of the said instantaneously combusting fossil fuel is between 50 and 90% by weight.

15. Composition according to any one of the preceding Claims 10 to 13, in which the amount of the said non-fossil solid fuel is between 50 and 10% by weight.

16. Composition according to any one of the preceding Claims 10 to 13, in which the amount of the said instantaneously combusting fossil fuel is between 60 and 80% by weight.

17. Composition according to any one of the preceding Claims 10 to 13, in which the amount of the said non-fossil solid fuel is between 40 and 20% by weight.

18. Composition according to any one of the preceding Claims 10 to 17, in which the instantaneously combusting fossil fuel is chosen from the group comprising methane, fuel oil, which may be in emulsion

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END A<sub>4</sub> form, and fossil coal dust, which may be in suspension form.

19. Composition according to any one of the preceding Claims 10 to 18, in which the said non-fossil solid fuel comprises a first fraction consisting of urban solid waste, a second fraction consisting of elastomeric material and a third fraction consisting of non-elastomeric polymer material.

20. Composition according to Claim 19, in which the amount of each of the three fractions is preselected as a function of the desired calorific power.

21. Composition according to any one of the preceding Claims 10 to 20, in which the said non-fossil solid fuel consists of a mixture comprising from 40 to 80% by weight of dry urban solid waste, from 10 to 50% by weight of elastomeric material and from 10 to 50% by weight of non-elastomeric polymer material.

22. Composition according to Claim 21, in which the said mixture comprises from 60 to 80% by weight of dry urban solid waste, from 10 to 30% by weight of elastomeric material and from 10 to 30% by weight of non-elastomeric polymer material.

SUB A<sub>5</sub> 23. Combustion method in which the flame of a burner of an instantaneous-combustion boiler is fed with a flow of instantaneously combusting fuel material comprising from 40 to 95% by weight of an instantaneously combusting fossil fuel and from 60 to 5% by weight of a non-fossil solid fuel chosen from the group comprising urban solid waste, elastomeric and non-elastomeric polymer materials and mixtures thereof, which has been suitably treated so as to be instantaneously combustible.

SUB C<sub>9</sub> 24. Combustion method according to Claim 23, in which the said non-fossil solid fuel consists of particles less than 1 mesh in size.

SUB A<sub>6</sub> 25. Combustion method according to Claim 23, in which at least 90% by weight of the said particles are less than 2 mesh in size.

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26. Combustion method according to Claim 23, in which at least 50% by weight of the said particles are less than 4 mesh in size.

27. Method according to any one of the preceding Claims 23 to 26, in which the particles of elastomeric polymer are less than 5 mm in size.

28. Method according to any one of the preceding Claims 23 to 27, in which the instantaneously combusting fossil fuel is chosen from the group comprising methane, fuel oil, which may be in emulsion form, and fossil coal dust, which may be in suspension form.

29. Method according to any one of the preceding Claims 23 to 28, in which the said non-fossil solid fuel comprises a first fraction consisting of urban solid waste, a second fraction consisting of elastomeric material and a third fraction consisting of non-elastomeric polymer material.

30. Method according to Claim 29, in which the amount of each of the three fractions is preselected as a function of the desired calorific power.

31. Method according to any one of the preceding Claims 23 to 30, in which the said non-fossil solid fuel has an apparent density is equal to or less than 0.6 g/cm<sup>3</sup>.

32. Method according to any one of the preceding Claims 23 to 31, in which the said non-fossil solid fuel consists of a mixture comprising from 40 to 80% by weight of dry urban solid waste, from 10 to 50% by weight of elastomeric material and from 10 to 50% by weight of non-elastomeric polymer material.

33. Method according to Claim 32, in which the said mixture comprises from 60 to 80% by weight of dry urban solid waste, from 10 to 30% by weight of elastomeric material and from 10 to 30% by weight of non-elastomeric polymer material.

34. Combustion method which comprises feeding an instantaneously combusting fossil fuel into an instantaneous-combustion boiler having a preset heat distribution,

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- combusting the said fuel material in the said boiler,
- generating at least a preset amount of heavy ash following the said combustion, characterized in that it comprises
- feeding a preset amount of an instantaneously combusting non-fossil fuel, chosen from the group comprising USW, elastomeric and non-elastomeric polymer materials and mixtures thereof, into a zone of the said boiler in which a temperature is maintained such that the level of non-combusted materials in the said heavy ash is less than 50% by weight.

35. Method according to Claim 34, in which the said zone of the boiler into which the said non-fossil fuel is fed has a temperature of not less than 1500°C.

36. Combustion method which comprises feeding a boiler with an instantaneously combusting fuel material, this method comprising feeding a fossil fuel and a non-fossil fuel chosen from the group comprising USW, elastomeric and non-elastomeric polymer materials and mixtures thereof, in which the particle size of the said non-fossil fuel has been predetermined such that the level of non-combusted materials in the heavy ash is maintained at less than 50% by weight.

37. Plant for the instantaneous combustion of at least one instantaneously combusting fossil fuel, comprising a boiler, at least one burner, a system for feeding in at least one said instantaneously combusting fossil fuel, and a combustion zone with a temperature which is greater than a preset value, characterized in that it also comprises a supply device which conveys a non-fossil solid fuel (NFSF) to the said combustion zone.

38. Plant according to Claim 37, characterized in that it comprises at least two burners.

39. Plant according to Claim 37 or 38, characterized in that the said supply device is a mechanical transportation device.

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40. Plant according to Claim 39, characterized in that the said mechanical supply device comprises an Archimedean screw.

41. Plant according to Claim 39, characterized in that the said mechanical supply device comprises members for crushing aggregates of the said non-fossil solid fuel (NFSF).

42. Plant according to Claim 37 or 38, characterized in that the said supply device comprises a pneumatic transportation device.

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